Contracting in Tobacco?

Carolyn Dimitri and Edward Jaenicke[1]

Abstract: Philip Morris surprised the tobacco community this year by issuing a press release stating that it was considering offering tobacco growers production contracts. Major questions currently raised by the tobacco community center on what impacts contracting would have on growers, consumers, and the tobacco program. While this article cannot answer all the questions, it provides some structure for a discussion of contracting. The article defines different kinds of agricultural contracts, provides an economic explanation for selling and producing agricultural commodities under contract, and discusses the experience of contracting in two industries: broilers and grains.

Keywords: Contracting, tobacco, production, and marketing contracts.

In a surprising press release earlier this year, Philip Morris stated its intention to begin contracting directly with U.S. tobacco farmers. Currently, of the major foreign producers, only Brazilian tobacco is grown under contract. In the United States, most tobacco is sold through a government-sanctioned auction, so this proposed action would dramatically alter the way tobacco is grown and marketed in the United States. The release created a stir as many wondered about the impact of contracting on the U.S. tobacco industry. Farmers questioned whether their profits would decline. Health advocates speculated that tobacco prices might fall and increase tobacco consumption. And everyone wondered if it would be possible for the tobacco program to remain intact if Philip Morris began contract production.

Contracts, while new to tobacco growers, are widely used in the production and sale of many agricultural commodities. For example, broilers, hogs, and cattle are produced under contract, some grain is produced under contract, vegetables for processing are generally produced under contract, and fresh fruits and vegetables are sometimes sold under contract. Specialized products—such as organic vegetables intended for processing, or a particular variety of wheat needed for pasta—are often produced under contract. The experience of the past suggests that contracts are here to stay and are likely to be used more frequently over time.

Many researchers believe that consumer preferences are driving the proliferation of agricultural contracts, in particular, production contracts. The rationale underlying this belief is that consumers have developed stronger preferences for specific qualities (Drabenstott). In response, manufacturers and other intermediaries have begun directly contracting with growers to ensure that they receive exactly the quality and quantity desired. For example, cigarette production requires a particular blend of different tobaccos, specifically "narrowly defined grades and styles of flue-cured and burley tobacco to produce very flavor-specific blends for our high quality cigarettes" (Philip Morris). In this light, the Philip Morris announcement is not surprising, since one proven way for manufacturers to get inputs of a desired quality is by writing production contracts with growers.

Producers and consumer advocates often question the value of producing agricultural commodities under contract, particularly during the period that an industry is transitioning from spot market sales to production contracting. Frequently raised questions include: Will only large producers have access to production contracts? What happens to growers who do not produce under contract? What impact does production contracting have on rural communities? Are contracts fair to producers? Admittedly, this paper does not answer all of these questions. We try, however, to provide some context for contracting by first presenting a general overview of the use of contracts in agriculture. We next try to provide insight into the costs and benefits of producing under contract by examining contracts in two industries, grains and broilers.[2]

[1] The authors are an economist with the Economic Research Service, USDA and an Assistant Professor at the University of Tennessee, respectively.

[2] Neil Hamilton, in his article "Why Own the Farm If You Can Own the Farmer (and the Crop)?: Contract Production and Intellectual Property Protection of Grain Crops," has completed an extensive legal/economic analysis of grain production contracts. Steve Martinez, in the ERS report "Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products" has done a similarly impressive job with broilers. We rely on these two reports for much of our factual information about the form of grain and broiler contracts.

The prevalence of contract production in the two industries and only a small share of grains are produced under contract (ERS). At this point in time, it is not clear which model the tobacco industry would be more likely to follow if contract production began. While thinking about these issues, it is useful to keep in mind that benefits and costs of contracting are industry-specific. Thus, the impact of production contracting on tobacco growers will differ from the impact on producers of broilers and grains.

Production and Marketing Decisions

Historically, agricultural producers have made most production and marketing decisions. They have decided what to produce, how much to plant, and what production techniques to use. The quantity and quality of output depended on the grower's efforts and choices, and some random elements (for example, weather). Production risk arises from systemic risk, which affects all producers, as well as individual risk, specific to a particular farmer. After harvesting, growers would market their products through an intermediary (for example, a wholesaler or auction market.) Buyers would choose from the available quality and quantity, and prices would be determined by supply and demand. Thus, at planting time, producers would be uncertain of the quantity and quality of their output and the price their commodities will receive. When purchasing, buyers' choices were constrained by the available quantity and quality.

Contracting can overcome some of these drawbacks inherent in the production system. From a producer's perspective, contracting can reduce some of the price and production risk. From a buyer's perspective, contracting can reduce the cost of obtaining the desired quantity and precise quality. These are two of the driving forces behind contracting. Once the two parties enter a contract, a third kind of problem arises—one termed "moral hazard" in the economics literature, most easily understood by illustration.

For example, the sharecropping contract is between a landowner and a grower who farms the land. Both parties realize that production is random (subject to systemic risk) and that it also depends on the grower's efforts. The grower knows if low output is the result of his low effort, or if low output results from some random factor beyond his control. The landowner only observes output and cannot discern if low output is out of the control of the grower or is due to his shirking.

One possible payment system in this contract is that the grower receives a flat fee for farming the land and the landowner gets all of the output. In other words, the landowner is the residual claimant in the contract. The grower is guaranteed the flat payment regardless of the level of output. Since the contract does not provide incentives to increase output, the grower is likely to exert low effort, or to shirk. This contract shifts all production and price risk from the grower to the landowner, but in doing so, creates incentive problems.

An alternative contract might provide the grower a fixed payment plus a per unit price for each pound of output produced. Some, but not all, production risk is shifted from the grower to the landowner, and the incentives for moral hazard are lower than in the first contract. Thus, contracts trade off risk sharing and incentives for moral hazard.

Another contracting issue the economics literature discusses is the relationship between price and quality. Speaking generally, buyers are willing to pay higher prices for higher quality. And all else equal, it costs more to produce higher quality. Akerlof has shown that when buyers cannot observe quality, only low quality merchandise will be sold in the marketplace. This phenomenon has been observed repeatedly in agricultural markets.

In Quebec's dairy market (Dupree) and in the Maryland tobacco market (Schweitzer), low quality merchandise was sold when there was no way to regulate or monitor quality. This same phenomenon led to the legislation of federal grades and standards for fruits and vegetables and grains (Dimitri). This idea is relevant to the tobacco industry since the Philip Morris press release states, "Then there's an additional problem with the excess pool stocks: In grade and style, this tobacco doesn't match what we at Philip Morris need."[3] This comment suggests that prices or institutions might have not adapted in such a way to provide growers with incentives to increase the quality or alter the mix of quality they produce and market. As a result, tobacco manufacturers may not be receiving exactly the blend and quality they prefer.

The economics literature terms the cost of obtaining specific quality or quantities needed for production as a form of transactions costs. Contracting is one technique for reducing transactions costs. Another possible solution to reducing transactions costs of producing and purchasing a specific commodity is for the contractor (the manufacturer) to vertically integrate with the producer. Many processors and shippers do own farm land. For example, California lettuce shippers own and farm land in different regions in order to provide lettuce year round (Wilson et al.). One production model consists of shippers and manufacturers owning land (that is, vertically integrated into production) and also writing production contracts with other growers.

Currently, the spectrum of possible ways to produce and market commodities ranges from growers making production decisions and selling on the spot market, to middlemen offering growers production contracts, to middlemen verti-

[3] "Partnering Arrangements Between Tobacco Farmers and Philip Morris," p3, April 1999.

cally integrating with growers. Which arrangement prevails in the market will depend on both the costs of production and costs of executing each kind of contract. For example, if quality has little impact on profits of growers and middlemen (meaning there are low transactions costs of securing the desired level of quality), independent production decisions and spot market transactions are likely to dominate the market. Changes in any of these costs will probably change the way agricultural commodities are produced and marketed (North and Wallis). If transactions costs of securing the exact grade and size of a product rise, then production and marketing may begin under contract or in a vertically integrated firm.

A wide variety of contracts are used in the marketing and production of agricultural commodities. In marketing contracts, growers have ownership of the crop until the crop is harvested and make all or most decisions about production techniques. Production contracts between growers and manufacturers are written before planting and specify price and both quantity and quality to be delivered after harvest. Production contracts are often complex, specifying in great detail methods the grower must use, including time of planting and harvesting and which seed varieties the grower should use. These kinds of contracts are production management contracts (Harwood et al).

For example, a major manufacturer of organic processed tomatoes provides growers with on-farm extension service, so the contracting growers have assistance with production whenever needed. Contractors gain an increased likelihood of receiving the quality they desire, and growers have a guaranteed market for their output. Resource-providing contracts go a step further, and provide growers with seeds and other production inputs while the grower typically provides labor, land, and other production facilities. The resource-providing contract gives the contractor greater control over the production process, which increases the likelihood of the manufacturer receiving exactly the quality and quantity desired (Harwood et al).

It appears likely that if contracting begins in tobacco, production rather than marketing contracts will be used, and consequently, the remainder of this article focuses on production contracts. All production contracts specify what inputs are provided by the grower and the contractor and how the grower's payment is determined. For some commodities, or some regions, specific contract terms are fairly uniform. For other commodities, the terms specified to growers vary widely (Knoeber, 1998). This variation in contract terms makes it impossible to discuss all of the benefits and costs of production contracting without referring to a particular industry and contractual arrangement.

Only one aspect of production contracts appears to be universal: growers experience loss of freedom in choosing their production methods. The degree of entrepreneurial loss depends on the specific terms of the contracts. It is likely that there is a tradeoff between risk reduction and how much control producers will relinquish to the contractor (Featherstone and Sherrick).

Contracting in Agriculture Varies by Commodity

According to the 1993 Farm Costs and Returns Survey, 11 percent of all farms had entered either marketing or production contracts. Of the total number of farms entering contracts, 2 percent were involved in production contracts and the remainder participated in marketing contracts. The number of farms entering contracts varied with farm size: the larger the farm, the greater the number of contracts. More than half the farms (54 percent) with sales exceeding $500,000 had production or marketing contracts (20 percent had production contracts). Forty percent of farms with sales between $250,000 and $499,999 used either kind of contract (11 percent had production contracts). Of the farms with sales below $49,999, 4 percent had entered a contractual agreement with a buyer, and less than 1 percent had entered a production contract. When examining the prevalence of contracting across commodities, the survey indicates that 89 percent of poultry, 29 percent of dairy, 36 percent of fruit and vegetable, 30 percent of cotton, and 26 percent of corn farms were involved in a contractual agreement.

Contracting for Grains

To gain some understanding of the issues relevant to contracting, we discuss some aspects (rather than provide a comprehensive analysis) of grain contracting. Many grains grown under contract are feed for livestock, such as high-oil corn, high-oleic sunflower, and value-added soybeans. Identity-preservation is cited as one of the major factors encouraging contract production of these kinds of grains. Identity-preserved grains are those with unique characteristics that stay with the product along the marketing chain, and these grains earn a price premium in the market.

Examples of identity-preserved commodities are organically grown products, and those that are genetically altered, perhaps tailored to a specific end use (such as high-oil corn) and therefore provide higher value (Hamilton). Usually, production contracts for identity-preserved grains are between seed developers (such as DuPont or Cargill) and growers. By producing identity-preserved grains under contract, the seed developer controls the quantity produced as well as the technology used in production (and consequently the final quality). This makes it possible to standardize product quality and to exert some control over how much is produced (thereby maintaining price premiums) (Hamilton).

Grain contracts vary in how much control the contractor has over production methods and how much managerial responsibility the producer retains. The amount of risk that shifts

to the contractor and how much risk the grower assumes also vary by contract. Hamilton, an agricultural law expert, argues that most grain contracts promise producers an assured market and a price premium. In exchange for the price premium, however, risk from crop loss or increased cost of inputs is borne by the farmer.

Contracting, as Hamilton points out, brings producers a whole new set of risks. These include risk of nonpayment by the contractor and risk of having produced a crop that falls below contracted quality requirements. The risk of not having the contract renewed may be costly if a large capital investment was necessary in order to enter the initial contract, while there is an additional risk of locking into a price that may be less than the spot market price at the time of harvest. Hamilton further argues that contracts that share risk are possible, and are the result of negotiations between attorneys of producers and contractor firms.

Contract terms are often quite specific, stating the exact requirements for the product to be acceptable and how payment will be determined. Hamilton provides examples of different clauses and statements that contracts contain. For example, a bean contract states that the grower will furnish a crop that passes field inspection, has a certain level of moisture, is free from mold and dirt, and is of one variety, among other requirements. The contract explicitly states "Any soybeans *not meeting these standards shall be disqualified from all premiums* and [the contracting firm's] option, be released from this contract or purchased on the local grain elevator price schedule."[4]

In another contract cited by Hamilton, pea beans without excess moisture receive a price per hundredweight less the cost of drying, a charge for removing damaged beans, a charge for removing corn and other items, and a charge to the bean commission. Other contracts provide growers with a base price plus a premium for meeting specific requirements. These price provisions, either a premium for high quality or a reduction for low quality, provide growers with incentives to sort the grain before delivery.

The grain contracts discussed above are between the owner of the seed and producers. The motive driving the seed owners is the preservation of seed identity. In return for maintaining identity, the seed owner offers the grower a price premium. The contracts discussed by Hamilton do not share production risk with growers, but by specifying price in advance they shield growers from price risk. Economics tell us that reducing or eliminating price risk introduces an incentive problem. In this case, the incentive is to supply low quality grain to the market by harvesting the grain and selling without removing damaged and low quality beans. By penalizing growers for low quality or providing premiums for high quality, the incentive to supply low quality grain is removed.

[4] Hamilton cites the 1992 Seed Production Contract used by Fairview Farms in his "Why Own the Farm If You Can Own the Farmer (and the Crop)?"

Contracting for Broilers

In contrast to the diverse character of grain contracts, broiler contracts are fairly uniform across the industry. This may stem from the nature of broiler production, which has several characteristics that differentiate poultry farms from other U.S. farms. For instance, poultry farms are highly specialized: nearly half of all the poultry or eggs produced come from farms that exclusively specialize, and three-quarters of all production comes from farms that produce only one other commodity besides poultry (Perry, Banker, and Green). Poultry production requires relatively little land, with the average poultry farm operating 134 acres, which is approximately one-third the size of the average U.S. farm.

In 1950, 95 percent of broiler producers were independent (Roy, 1963; Martinez). Meanwhile, however, technological advances in feed formulations, automatic feeding, and breeding increased the size of flocks and set the stage for integration and contract production. Larger flocks meant larger capital requirements, which—coupled with declining and highly variable broiler prices—made broiler operations a risky business (Martinez). Larger feed companies soon offered and established production contracts with growers, thus assuring a market outlet for feed supplies in exchange for reducing growers' financial risks. The use of production contracts increased quickly: by 1955, only 10 percent of broiler producers remained independent, and by 1994, approximately 1 percent of broiler producers were independent (Martinez). As the use of contracts developed, chicken processors replaced feed suppliers as primary integrators because they stood to gain the most from coordinating supply and demand.

Today, most major chicken processors control all the vertical stages in the boiler industry through integrated ownership or production contracts. These processor integrators breed the parent stock, produce the hatching eggs, and provide baby chicks, feed, veterinary services, and technical advice to growers under contract. Growers provide the chicken houses, litter, and labor. While not uniform, production contracts in the broiler industry are now relatively similar. Over the years, however, broiler contracts have evolved to address or correct various economic obstacles—such as risky production, poor incentives to maintain high productivity, and large capital requirements—facing growers.

Martinez reports that the earliest broiler contracts, labeled *open account contracts*, merely eased the growers' capital constraints by extending credit. The integrators (who at the time were usually feed companies) made their profit by feed markups or by a flat service charge. Therefore, these early contracts did not shift any risk from producers to integra-

tors. The next contracts—*guaranteed price contracts and flat-fee contracts*—guaranteed the grower a certain price or a flat fee per bird when the broilers were sold. The flat-fee contracts, which were widely used in the 1950's and 1960's, also reduced capital requirements because the integrator provided feed and other inputs while retaining title to the broilers. But whereas these contracts succeeded in shifting risks from the grower to the integrator, they also brought about certain incentive problems. Specifically, they encouraged shirking by the growers.

To deter shirking, *share contracts* gave growers a share in the proceeds of broiler sales (after integrator costs were netted out). Unfortunately, these contracts encouraged high input price markups by the integrator, and growers still faced large capital requirements and some incentive to shirk. By paying growers a bonus based on the amount of feed they used on a per-bird basis, *feed conversion contracts* addressed the incentive problem but still left growers vulnerable to production risk and capital constraints. Currently, combination contracts, which involve a flat-fee payment adjusted by a performance bonus, combine desirable risk and incentive properties of previous contracts. In addition, the bonus payment is based on the grower's performance relative to his or her peer growers rather than an absolute standard.

Knoeber and Thurman describe two varieties of this last contract type. The first variety, used prior to June 1984 by a small integrator, is called a *tournament contract*. For each grower, performance is measured by settlement cost, a cost-per-live-pound measure that is based on feed efficiency. Settlement cost decreases—that is, grower performance improves—as the number of pounds of chicken produced per input (in this case, chicks and feed) increases. Growers whose flocks are harvested within a 10-day period were put in the same tournament and ranked by performance. The ranking was divided into quartiles that determined the per-pound payments to growers. The minimum pay for growers ranked in the bottom quartile was set at 2.6 cents per pound (although this minimum pay might be lowered in particularly bad years). Moving up to the next highest quartile increased the per-pound payment by 3.0 cents.

The second variety described by Knoeber and Thurman, used after June 1984, is called a *linear relative performance evaluation contract*. Now settlement costs, which were calculated the same way, were first averaged. Growers whose performance was equal to the average were paid 3.2 cents per pound. Growers who out-performed the average were paid 3.2 cents plus the difference between their own settlement cost and the average. Alternatively, growers who under-performed the average were paid 3.2 cents less the difference. Finally, the minimum pay of 2.6 cents per pound was still guaranteed.

The incentives to growers between these two varieties are subtly different. In the tournament contract, high-ability growers who consistently out-perform the average may not have an incentive to try their best because they might still make the top quartile without putting forth their best effort. The linear relative contract corrects this by giving even high-ability growers the proper reward for trying their best.

Concluding Remarks

Contract production is a recent phenomenon in the grain industry and, in contrast, a long-standing way to produce broilers. The trend towards contract production differs between the two industries. For example, producing grain under contract appears to be the result of seed companies wanting to preserve seed identity. Broiler production, however, seems to be the result of the need to produce a uniform commodity, able to be manufactured in an automated processing facility. The two industries have different tacks to achieving uniform quality: the grain industry uses price provisions to provide growers with incentives to bring high quality grain to market. In the broiler industry, high quality is encouraged through using relative performance or tournament contracts.

Not all aspects of contracting have been viewed positively. During the development of the broiler industry, several critics have expressed concern over the reduction of entrepreneurial activity on the part of growers (Allin; Mighel; Roy, 1958). Absent contract renegotiation, growers are limited in the changes they can make in production practices, so innovation may occur at a slower rate than in the absence of production contracts (Perry, Banker, and Green). Another concern is unequal bargaining power: growers could face a decision of accepting an unattractive contract or going out of production. Hence, some observers have suggested that contract risk has replaced price and production risk.

What does this say for the tobacco industry? The experience of other industries suggests that contract production would provide manufacturers with the quality of tobacco needed for cigarette production. The experience of other industries also suggests that, over time, contracts would evolve to provide growers with incentives to take specific actions to increase tobacco quality. Again, experience of other industries suggests that growers who enter production contracts are likely to earn price premiums for tobacco that satisfies contract standards. At the same time, these growers will likely take on contract-specific risk—the risk of producing tobacco that does not meet contract standards and the risk of not having their contracts renewed. What is not clear, however, is which growers will be contract growers, and if only a portion of growers produce under contract, what will be the fate of the independent grower. Finally, the tobacco program introduces enormous complexity, thereby clouding any predictions concerning the future use of production contracts.

References

Akerlof, George A. "The Market for "Lemons:" Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 84 (August 1970): pp 488-500.

Allin, Bushrod W. "Agriculture's Public Relations," *Journal of Farm Economics*, 40 (1958): pp 187-195

Dimitri, Carolyn, "Order Out of Chaos: Evolution of Marketing Institutions," *Choices*, forthcoming, Fourth Quarter, 1999.

Drabenstott, Mark, "Industrialization: Steady Current or Tidal Wave?" *Choices*, pp 4-8, 1994.

Dupre, Ruth, "Regulating the Quebec Dairy Industry, 1905-1921: Peeling Off the Joseph Label," *Journal of Economic History*, 1990, Vol. L, No. 2, pp 339-569.

U.S. Department of Agriculture, "*Farmers' Use of Marketing and Production Contracts*," AER-747, Economic Research Service, Washington, DC, December 1996.

Featherstone, Allen M. and Bruce J. Sherrick, "Financing Vertically Coordinated Agricultural Firms," *American Journal of Agricultural Economics*, 74 (1992): pp 1232-1237.

Hamilton, Neil "Why Own the Farm If You Can Own the Farmer (and the Crop)? Contract Production and Intellectual Property Protection of Grain Crops," *Nebraska Law Review*, Vol. 73:48, pp 48-103, 1994.

Harwood, Joy, Richard Heifner, Keith Coble, Janet Perry, and Agapi Somwaru, "*Managing Risk in Farming: Concepts, Research, and Analysis*," AER-774. U.S. Department of Agriculture, Economic Research Service, Washington, DC, March 1999.

Knoeber, Charles R., "A Real Game of Chicken: Contracts, Tournaments, and the Production of Broilers," J*ournal of Law, Economics, and Organization*, Vol. 5, No. 2, Fall 1989.

Knoeber, Charles R., "Contract Production in U.S. Agriculture: A Characterization of Current Empirical Research," manuscript, North Carolina State University, February 1998.

Knoeber, Charles R. and Walter N. Thurman. "Testing the Theory of Tournaments: An Empirical Analysis of Broiler Production," *Journal of Labor Economics* 12 (1994): pp 155-179.

Martinez, Steve W. "*Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products*," AER-777. U.S. Department of Agriculture, Economic Research Service, Washington, DC, April 1999.

Mighel, Ronald L. "Vertical Integration and Farm Management." *Journal of Farm Economics* 39 (1957): pp 1666-1669.

Milgrom, Paul, and John Roberts. *Economics, Organization, and Management*. Englewood Cliffs, NJ: Prentice Hall, 1992.

Perry, Janet, David Banker, and Robert Green. "*Broiler Farms' Organization, Management, and Performance.*" AIB-748. U.S. Department of Agriculture, Economic Research Service, Washington, DC, April 1999.

Philip Morris "*Partnering Arrangement Between Tobacco Farmers and Philip Morris*," April 1999.

Roy, Ewell P. "Alternative Way of Coordinating Production and Marketing." *Journal of Farm Economics* 40 (1958): pp 1790-1800.

Roy, Ewell P. *Contract Farming, U.S.A.* Danville, IL: Interstate Printers and Publishers, 1963.

Schweitzer, Mary McKinney, "Economic Regulation and the Colonial Economy: The Maryland Tobacco Inspection Act of 1747," *Journal of Economic History*, Vol. 40 No. 3, September 1980, pp 551-69.

North, Douglass C., and John J. Wallis, "Integrating Institutional Change and Technical Change in Economic History, A Transaction Cost Approach," *Journal of Institutional and Theoretical Economics*, 1994, Vol. 150, No. 4, pp 609-624.

Wilson, Paul, Gary Thompson, and Roberta Cook, "Mother Nature, Business Strategy, and Fresh Produce," *Choices*, First Quarter: pp 18-21, 24, 25, 1997.

Statistical Summary

Item	Unit or base period	1998 Sep	1998 Oct	1999 Aug	1999 Sep	1999 Oct	Last data as percentage of a year earlier
Average price to growers							
Flue-cured	Ct. per lb.	179.5	186.4	163.6	169.1	173.5	99
Burley	Ct. per lb.	closed	closed	closed	closed	closed	**
Maryland	Ct. per lb.	closed	closed	closed	closed	closed	**
Virginia fire-cured	Ct. per lb.	closed	closed	closed	closed	closed	**
Ky.-Tenn. fire-cured	Ct. per lb.	closed	closed	closed	closed	closed	**
Ky.-Tenn. dark air-cured	Ct. per lb.	closed	closed	closed	closed	closed	**
Virginia sun-cured	Ct. per lb.	closed	closed	closed	closed	closed	**
Price support level 1/							
Flue-cured	Ct. per lb.	162.8			163.2		100
Burley	Ct. per lb.	177.8			178.9		101
Virginia fire-cured	Ct. per lb.	153.6			155.9		101
Ky.-Tenn. fire-cured	Ct. per lb.	168.1			171.6		102
Ky.-Tenn. dark air-cured	Ct. per lb.	145.0			148.1		102
Virginia sun-cured	Ct. per lb.	136.0			138.0		101
Wisc. binder and Ohio filler	Ct. per lb.	121.2			124.0		
Parity index 2/	1910-14=100	1,529.0	1,517.0	1,551.0	1,541.0	1,546.0	101
Industrial production index 3/	1992=100	131.9	134.1	137.7	138.0	139.1	105
Employment-Civilian	Millions	131.8	131.8	133.4	133.5	133.9	101
Personal income 4/	Bil. dol.	7,441.3	7,481.5	7,840.0	7,848.1	7,848.5	105

		1998 Feb	1998 Mar	1999 Jan	1999 Feb	1999 Mar	
Taxable removals							
Cigarettes	Billions	36.7	40.2	31.2	36.3	34.9	87
Cigars and cigarillos	Millions	244.9	274.8	229.2	243.3	284.8	104
Accumulated from Jan. 1							
Cigarettes	Billions	72.6	145.2	31.2	67.5	102.4	71
Cigars and cigarillos	Millions	476.9	953.8	229.2	472.5	757.3	79
Tax-exempt removals							
Cigarettes	Billions	18.4	18.7	14.5	15.0	19.6	302
Exports	Billions	18.3	18.6	14.3	14.8	19.3	104
Cigars and cigarillos	Millions	10.9	6.5	89.1	106.4	109.2	1,680
Accumulated from Jan. 1							
Cigarettes	Billions	167.3	186.0	14.5	29.5	49.1	26
Exports	Billions	164.5	183.1	14.3	29.1	48.4	26
Cigars and cigarillos	Millions	103.6	110.1	89.1	195.6	304.8	277

		1998 Sep	1998 Oct	1999 Aug	1999 Sep	1999 Oct	
Invoiced to domestic customers							
Accumulated from Jan. 1							
Smoking tobacco	Million lb.		8.1			9.8	121
Chewing tobacco	Million lb.		16.6			17.2	104
Snuff	Million lb.		48.1			49.0	102
Invoiced for export							
Accumulated from Jan. 1							
Smoking tobacco	Million lb.		0.4			0.4	100
Chewing tobacco	Million lb.		0.1			0.1	76
Snuff	Million lb.		0.5			0.6	120
Producer price indexes 5/							
Tobacco products	1982=100	287.4	288.0	363.8	394.5	394.5	
Cigarettes (filtertip, king size)	1982=100	316.6	318.4	412.9	451.9	451.8	142
Cigars	1982=100	230.4	232.6	248.6	248.6	248.6	107
Smoking tobacco	1982=100	233.9	233.9	*	*	*	*
Snuff	1982=100	349.8	349.8	381.5	402.1	401.4	115
Consumer price index (urban)							
Tobacco products	1982-84=100	283.5	284.9	350.1	373.8	373.3	131
Imports of tobacco (for consumption) 6/							
Cigarette leaf	Million lb.	30.4	28,297.2	30.6	37.0	13.9	0
Cigar tobacco (leaf and scrap)	Million lb.	5.4	5.5	5.3	3.5	3.0	55
Other tobacco (leaf, scrap, and stems)	Million lb.	14.2	6.5	4.6	2.9	6.4	98
Accumulated from Jan. 1 6/							
Cigarette leaf	Million lb.	249.2	279.6	223.6	254.2	291.2	104
Cigar tobacco (leaf and scrap)	Million lb.	51.7	57.1	40.8	46.1	49.6	87
Other tobacco (leaf, scrap, and stems)	Million lb.	88.4	102.6	62.1	66.7	69.6	68

See footnotes at end of table.